AMENDMENTS TO THE SPECIFICATION

Please amend the Specification as follows:

[0025] Figs. 3 and 4 are flow charts showing how user preference scores are created for images. These methods are preferably performed periodically, such as weekly. For example, while click information is stored on an ongoing basis, new scores for images may be computed on a weekly basis, using the data from the previous time period. Other embodiments may perform these methods in real time or close to real time. As discussed above, user click information is tracked 300 and stored in log 140. Fig 5 shows an example format 500 for a click information record in log 140. It contains:

[0033] The click information log data 140 is sorted by query 320 and a score is determined 330 for each image that was clicked on for each query. Thus, if an image of a roadrunner was returned in search results for the separate queries "roadrunner" and "beep beep," that image would have multiple scores – one for each query for which it was returned.

[0034] Fig. 4 shows details of how a user preference score is determined. The method of Fig. 4 is performed for each query (loop 400/460) and for each image clicked on for a query (loop 410/450). For each image, an expected clicks value is determined, based on the physical position(s) in the result set when clicks on the image occurred and further based on the number of clicks and a weight accorded with the physical position(s). As an example, roadrunner image 210 of Fig. 2 is in position 1 and roadrunner image 220 is in position 3. An actually number of clicks on the image for the query is also determined 430 from log 140. The user preference score 440 of the image is computed from dividing the actual number of the click by the expected number of clicks.

2

[0036] As shown in Fig. 7, image A occupied two different positions on the results page, 700, during the time click information was being collected (position 1 and position 2). This may occur, for example, if the search index was recomputed during the track period or if the images were added or removed from the search pool. Image A was clicked 4 times. Image B occupied position 5 and was clicked once. Image C occupied position 15 and was clicked on twice. The percentages of clicks expected column in Fig. 7 is taken from a position weight table, such as that shown in Figs. 6(b) and 6(c).

[0037] Fig. 6a shows an example of search result positions for a first page of search results 600. Thus, in this example, image 210 of Fig. 2 is in position 1 and image 220 of Fig. 2 is in position 2. Other implementations of the invention use different numbering schemes.

[0038] Fig. 6(b) and 6(c) show an example position weight table 610 and 620. The position weight table shows the weights given to clicks on images located in various search result positions for an example user interface displaying search results. These weights are not query specific and preferably a different table is used for each interface. In general, in has been determined that users tend to click most on the first row of search results, no matter what the query or results presented. The next most popular is the bottom row of search results and the third most popular id the middle column. The weights in the weight table 610 and 620 of Figs. 6(b) and 6(c) are computed by, for example, trial and error, by analyzing actual clickthrough data (i.e., observed user click behavior), or by any other acceptable method that takes in to account user preferences in

position within search results. The weight table preferably is computed periodically, for example, weekly.

[0062] In the example, result positions 1-15 were on page one and result positions 16-30 were on page two of the user interface. The weight tables for subsequent pages are not shown . since they are not needed for this example.

In the example and as shown in Figs. 6(b), position 1 (image A) is : assigned a weight of 0.0576, Position 2 (image A) is assigned a weight of 0.0446. Position 5 (image B) is assigned a weight of 0.0293. Position 15 (image C) is assigned a weight of 0.0237.

"Clicks expected" is then computed for each, image (420 of Fig. 4). The average of the, weights for the positions in which each image was clicked is determined. Then, because there are 7 total clicks, the average weight is multiplied by 7 to give the allocation of clicks we expect based on position. For example, for image A there were 3 clicks in position 1, each with weight 0.0576, and one click in position 2, with weight 0.0446. The average of the weights for image A is (.0576+.0576+.0576+.0446)/4, or .05435. The clicks expected = 7 * .05435 = .38045.

Fig 8. continues the example of determining an image user preference score for a query 800. For the current query, the number of actual clicks on each image is determined. In the example, image A has 4 actual clicks; image B has 1 actual click; and image C has 2 actual clicks. Next, the "clicks expected values for the images are summed".

Clicks expected for A = (.0576+.0576+.0576+.0446)/4 * 7 = .38045

Clicks expected for B = (.0293)/1 * 7 = .2051

Clicks expected for C = (.0237+.0237)/2 * 7 = .1659

User preference scores for images A, B, and C for the query "roadrunner"

are:

A's score = 4/.38045 = 10.51

B's score = 1/.2051 = 4.88

C's score = 2/.1659 = 12.06

Thus, image C, which was at position 15, has the highest user preference

score. Image A, which was clicked on 4 times and was at either position 1 or 2, has the

next highest score and image B, which was at position 5, had the lowest score.